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Reviewer: Anne Corrigan

Timestamp: [year=2008; month=2; day=25; hr=15; min=18; sec=1; ms=363;]

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Application No: 10586875 Version No: 1.0

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<110> Suzano Papel E Cellulose S.A.

Fundacao De Estudos Agrarios "Luiz De Queiroz"- Fealq Fundacao De Amaparo A Pesquisa Do Estado De Sao Paulo

Labate, Carlos Alberto

Labate, Monica Teresa Venesiano

Bertolo, Ana Leticia

Nascimento, Daniela Defavari

Gunta, Gutmanis

Maria, Faraldo Inez Fernandes

<120> METHOD FOR THE GENETIC MODULATION OF THE BIOSYNTHESIS OF HEMICELLULOSES, CELLULOSE AND URONIC ACIDS IN PLANT CELLS USING GENE EXPRESSION CASSETTES

<130> 066281-0014

<140> 10586875

<141> 2008-02-25

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Ile Tyr Glu Pro Gly Leu Asp Gly Val Val Lys Gln Cys Arg Gly Lys 50 55 60

Asn Leu Phe Phe Ser Thr Asp Val Glu Lys His Val Phe Glu Ala Asp 65 70 75 80

Ile Val Phe Val Ser Val Asn Thr Pro Thr Lys Thr Gln Gly Leu Gly 85 90

Ala	Gly	Lys	Ala 100	Ala	Asp	Leu	Thr	Tyr 105	Trp	Glu	Ser	Ala	Ala 110	Arg	Met
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Val	Pro 130	Val	Lys	Thr	Ala	Glu 135	Ala	Ile	Glu	Lys	Ile 140	Leu	Thr	His	Asn
Ser 145	Lys	Gly	Ile	Lys	Phe 150	Gln	Ile	Leu	Ser	Asn 155	Pro	Glu	Phe	Leu	Ala 160
			Ala	165					170					175	
			Glu 180					185					190		
_		195	Ala				200					205			
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			Lys	245					250					255	
	_		260 Asp					265					270		
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	290		Ser			295		_			300				
305		-		2	310			-		315					320

Thr Val Ser Asn Lys Lys Ile Ala Ile Leu Gly Phe Ala Phe Lys Lys

325 330 335

Asp Thr Gly Asp Thr Arg Glu Thr Pro Ala Ile Asp Val Cys Gln Gly 340 345 350

Leu Leu Gly Asp Lys Ala Asn Leu Ser Ile Tyr Asp Pro Gln Val Thr 355 360 365

Glu Asp Gln Ile Gln Arg Asp Leu Ser Met Asn Lys Phe Asp Trp Asp 370 380

His Pro Ile His Leu Gln Pro Thr Ser Pro Thr Thr Val Lys Lys Val 385 390 395 400

Ser Val Val Trp Asp Ala Tyr Glu Ala Thr Lys Asp Ala His Gly Leu 405 410 415

Cys Ile Leu Thr Glu Trp Asp Glu Phe Lys Thr Leu Asp Tyr Gln Lys
420 425 430

Ile Phe Asp Asn Met Gln Lys Pro Ala Phe Val Phe Asp Gly Arg Asn \$435\$ \$440\$ \$445\$

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Pro	Arg	Phe	Glu	Leu 85	Ile	Arg	His	Asp	Val 90	Thr	Glu	Pro	Leu	Met 95	Ile
Glu	Val	Asp	Gln 100	Ile	Tyr	His	Leu	Ala 105	Cys	Pro	Ala	Ser	Pro 110	Ile	Phe
Tyr	Lys	Tyr 115	Asn	Pro	Val	Lys	Thr 120	Ile	Lys	Thr	Asn	Val 125	Ile	Gly	Thr
Leu	Asn 130	Met	Leu	Gly	Leu	Ala 135	Lys	Arg	Val	Gly	Ala 140	Arg	Ile	Leu	Leu
Thr 145	Ser	Thr	Ser	Glu	Val 150	Tyr	Gly	Asp	Pro	Leu 155	Glu	His	Pro	Gln	Pro 160
Glu	Thr	Tyr	Trp	Gly 165	Asn	Val	Asn	Pro	Ile 170	Gly	Val	Arg	Ser	Cys 175	Tyr
Asp	Glu	Gly	Lys 180	Arg	Val	Ala	Glu	Thr 185	Leu	Met	Phe	Asp	Tyr 190	His	Arg
Gln	His	Gly 195	Ile	Glu	Ile	Arg	Val 200	Ala	Arg	Ile	Phe	Asn 205	Thr	Tyr	Gly
Pro	Arg 210	Met	Asn	Ile	Asp	Asp 215	Gly	Arg	Val	Val	Ser 220	Asn	Phe	Ile	Ala
Gln 225	Ala	Leu	Arg	Asp	Glu 230	Ser	Leu	Thr	Val	Gln 235	Ser	Pro	Gly	Thr	Gln 240
Thr	Arg	Ser	Phe	Cys 245	Tyr	Val	Ser	Asp	Leu 250	Val	Asp	Gly	Leu	Ile 255	Arg
Leu	Met	Gly	Gly 260	Ser	Asp	Thr	Gly	Pro 265	Ile	Asn	Leu	Gly	Asn 270	Pro	Gly

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Pro Asn Val Glu Ile Lys Ile Val Glu Asn Thr Pro Asp Asp Pro Arg
290 295 300

Gln Arg Lys Pro Asp Ile Thr Lys Ala Gln Glu Leu Leu Gly Trp Glu 305 310 315 320

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Tyr Lys Arg Met Thr Val Leu Glu Ala Val Asp Met Leu Asp Gly Leu 65 70 75 80

Val Asp Glu Ser Asp Pro Asp Val Asp Phe Pro Asn Ser Phe His Ala 85 90 95

Phe Gln Thr Ala Glu Gly Ile Arg Lys Ala His Pro Asp Lys Asp Trp 100 105 110

Phe His Leu Val Gly Leu Leu His Asp Leu Gly Lys Val Leu Val Leu
115 120 125

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Gln Pro His	Cys Gly 180	Leu Glu	Asn Ala 185	Leu Met	Ser Trp	Gly His Asp 190
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Glu Ala Phe 210	Tyr Ile	Ile Arg 215	Phe His	Ser Phe	Tyr Pro 220	Trp His Thr
Gly Gly Asp	Tyr Arg	Gln Leu 230	Cys Asn	Glu Gln 235	Asp Leu	Ala Met Leu 240
Pro Trp Val	Gln Glu 245	Phe Asn	Lys Phe	Asp Leu 250	Tyr Thr	Lys Gly Ser 255
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Gln	His 50	Ile	Asp	Trp	Ser	Lys 55	Ile	Gln	Thr	Pro	Thr 60	Asp	Glu	Val	Val
Val 65	Pro	Tyr	Asp	Lys	Leu 70	Ala	Pro	Leu	Ser	Glu 75	Asp	Pro	Ala	Glu	Thr 80
Lys	Lys	Leu	Leu	Asp 85	Lys	Leu	Val	Val	Leu 90	Lys	Leu	Asn	Gly	Gly 95	Leu
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Gly	Trp	Tyr 195	Pro	Pro	Gly	His	Gly 200	Asp	Val	Phe	Pro	Ser 205	Leu	Met	Asn
Ser	Gly 210	Lys	Leu	Asp	Ala	Leu 215	Leu	Ala	Lys	Gly	Lys 220	Glu	Tyr	Val	Phe
Val 225	Ala	Asn	Ser	Asp	Asn 230	Leu	Gly	Ala	Ile	Val 235	Asp	Leu	Lys	Ile	Leu 240
Asn	His	Leu	Ile	Leu 245	Asn	Lys	Asn	Glu	Tyr 250	Cys	Met	Glu	Val	Thr 255	Pro

Lys Thr Leu Ala Asp Val Lys Gly Gly Thr Leu Ile Ser Tyr Glu Gly

260 265 270

Lys Val Gln Leu Leu Glu Ile Ala Gln Val Pro Asp Glu His Val Asn 280 285 275 Glu Phe Lys Ser Ile Glu Lys Phe Lys Ile Phe Asn Thr Asn Asn Leu 295 300 Trp Val Asn Leu Ser Ala Ile Lys Arg Leu Val Glu Ala Asp Ala Leu 305 310 315 320 Lys Met Glu Ile Ile Pro Asn Pro Lys Glu Val Asp Gly Val Lys Val 325 330 Leu Gln Leu Glu Thr Ala Ala Gly Ala Ala Ile Lys Phe Phe Asp Arg 340 345 350 Ala Ile Gly Ala Asn Val Pro Arg Ser Arg Phe Leu Pro Val Lys Ala 355 360 365 Thr Ser Asp Leu Leu Val Gln Ser Asp Leu Tyr Thr Leu Thr Asp 370 375 380 Glu Gly Tyr Val Ile Arg Asn Pro Ala Arg Ser Asn Pro Ser Asn Pro 385 390 395 400 Ser Ile Glu Leu Gly Pro Glu Phe Lys Lys Val Ala Asn Phe Leu Gly 415 405 410 Arg Phe Lys Ser Ile Pro Ser Ile Ile Asp Leu Asp Ser Leu Lys Val 420 425 430 Thr Gly Asp Val Trp Phe Gly Ser Gly Val Thr Leu Lys Gly Lys Val 435 440 445 Thr Val Ala Ala Lys Ser Gly Val Lys Leu Glu Ile Pro Asp Gly Ala 450 455 460 Val Ile Ala Asn Lys Asp Ile Asn Gly Pro Glu Asp Ile

470 475

465